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PATENT APPLICATION  
Mo6476  
LeA 34,678

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

APPLICATION OF )  
MARTIN MELCHORS ET AL ) GROUP ART UNIT: 1711  
SERIAL NUMBER: 09/928,853 ) EXAMINER: Rabon A. Sergent  
FILED: August 13, 2001 )  
TITLE: AQUEOUS DISPERSIONS )

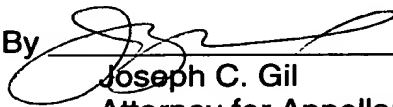
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**LETTER**

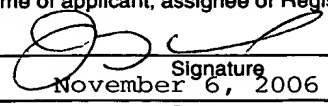
Sir:

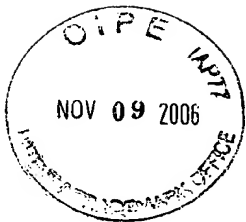
Enclosed is an Appeal Brief in the matter of the subject Appeal. Please charge the fee for filing the Brief, \$500.00, to our Deposit Account Number 13-3848. Triplicate copies of this paper are enclosed.

Respectfully submitted,

By   
Joseph C. Gil  
Attorney for Appellants  
Reg. No. 26,602

Bayer MaterialScience LLC  
100 Bayer Road  
Pittsburgh, PA 15205-9741  
Phone: (412) 777-3813  
FACSIMILE PHONE NUMBER:  
(412) 777-3902  
s:\shared\jmf\DA6476.ltr

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an enveloped addressed to: Commissioner for Patents, Alexandria, VA 22313-1450 November 6, 2006  
Date  
Joseph C. Gil, Reg. No. 26,602  
Name of applicant, assignee or Registered Representative  
  
Signature  
November 6, 2006  
Date



PATENT APPLICATION  
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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

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**MAIL STOP APPEAL BRIEF – PATENTS**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**ON APPEAL FROM THE PRIMARY EXAMINER TO THE  
BOARD OF PATENT APPEALS AND INTERFERENCES**

**APPELLANT'S BRIEF UNDER 37 C.F.R. § 41.31**

Sir:

The present Appeal Brief is submitted in support of the Notice of Appeal filed September 11, 2006.

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enveloped addressed to: Commissioner for Patents,  
Alexandria, VA 22313-1450 November 6, 2006

Date

Joseph C. Gil, Reg. No. 26,602

Name of applicant, assignee or Registered Representative



Signature

November 6, 2006

Date

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I

**REAL PARTY IN INTEREST**

The real party in interest for the application in this Appeal is assignee Bayer Aktiengesellschaft, by virtue of the Assignment dated October 16, 17 and 18, 2001, recorded at Reel/Frame 012492/0051 on January 15, 2002, in the United States Patent and Trademark Office.

II

**RELATED APPEALS AND INTERFERENCES**

As the legal representative of Appellants, the undersigned attorney has no knowledge of any appeals or interferences directly related to this Appeal.

III

**STATUS OF CLAIMS**

Claims 1-7 and 9-11 of this patent application are pending. Claim 8 was cancelled and the subject matter incorporated into Claim 1. Claims 1-7 and 9-11 were finally rejected under 35 U.S.C. §103(a) in an Office Action mailed June 28, 2006 ("Final Office Action").

Ten pending claims, Claims 1-7 and 9-11, are at issue in this Appeal. Claims 2-7 and 9-11 stand or fall with Claim 1.

IV

**STATUS OF AMENDMENTS**

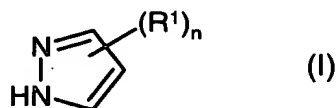
No claims were amended after final rejection. A copy of the claims involved in this Appeal is contained in the Appendix attached hereto.

V

**SUMMARY OF CLAIMED SUBJECT MATTER**

In one embodiment set forth in Claim 1, Appellants have discovered a waterborne coating composition comprising a physical mixture present in the form of a dispersion in water and optionally organic solvents and comprising

- A at least one polyol having urethane groups and chemically bound hydrophilic groups, and
- B at least one polyisocyanate having no chemically bound hydrophilic groups and which is blocked with pyrazole derivatives corresponding to formula (I)



wherein R<sup>1</sup> represents a (cyclo)aliphatic hydrocarbon radical having 1 to 12 carbon atoms and wherein n is an integer from 0 to 3,  
 wherein the molar ratio of blocked NCO groups of crosslinking agent B to NCO-reactive groups of polyol A or binder mixtures containing polyol A is 0.2 : 1 to 5 : 1; and  
 wherein  
 the polyisocyanate B is added to the polyol A before the conversion thereof to the aqueous phase.

See original Claims 1 and 8 and the specification at page 2, line 23 through page 3, line 8.

The coating compositions of the present invention are particularly suitable for the production of chemical-resistant, chip-resistant and non-yellowing coatings. The coatings are storage-stable, based on the use of polyisocyanates blocked with pyrazole derivatives. Through the use of polyols containing urethane groups, the polyisocyanates blocked with pyrazoles can be dispersed in a stable manner in water.

## VI

### GROUND OF REJECTION TO BE REVIEWED ON APPEAL

Has A Prima Facie Case Of Obviousness Under 35 U.S.C. §103(A) Over U.S. Patent No. 5,126,393 ("Blum") In View Of Ep 0 159 117 B1 ("Hughes") Been Established?

## VII

### ARGUMENT

The Required Prima Facie Case of Obviousness under 35 U.S.C. §103(a) Over Blum In View of Hughes Has Not Been Established.

#### A. The Rejection

Claims 1-7 and 9-11 stand rejected under 35 U.S.C. §103(a) as being obvious under 35 U.S.C. §103(a) over U.S. Patent 5,126,393 ("Blum") in view of EP 0 159 117 B1 ("Hughes"). The reasons for rejection are set forth in the Office Action of December 13, 2005 ("Office Action") and the Final Office Action, summarized as follows:

In the Office Action it is alleged that Blum discloses water dispersible binder compositions comprising a urethane-modified polyester polyol derived from ingredients overlapping the composition of the present invention, and a blocked polyisocyanate. It is conceded in the Office Action that the pyrazole blocking agents of the present invention are not shown in Blum. It is asserted that use of pyrazoles as blocking agents for polyisocyanates that are to be incorporated into aqueous compositions in masked form was known at the time of invention, as allegedly evidenced by the teachings of Hughes, the secondary reference. Additionally, Hughes is said to disclose that a benefit of the pyrazole blocking agents is that the deblocking temperature is significantly lower as compared to the deblocking temperature of other conventional blocking agents. Since lower deblocking temperatures require less energy input and therefore require less expense, it is asserted that it would have been obvious to utilize the pyrazole blocking agents in the method of the primary reference, so as to obtain a coating system that is less expensive to apply. It is asserted that the chemistry of stoving compositions and

electroplating systems is sufficiently similar that one skilled in the art would be motivated to combine the teachings of the references. These assertions are repeated in the Final Office Action.

It is alleged in the Office Action and in the Final Office Action that Appellants' argument and inventor declarations are not adequately representative of the prior art, because the prior art does not require that the crosslinking agent be added after formation of the dispersion. Blum is said to teach at column 7, lines 16-19, that the binder compositions may be prepared simply by mixing the individual components a), b), and c) in any order, and that given the description of these components in the reference it is asserted to be clear that water is not a required component of any of components a), b) or c).

In the Final Office Action the language found at column 7, lines 16-19 of Blum is again cited to and is said to clearly indicate that "binder compositions" refers to undispersed compositions that comprise components a) (urethane-modified polyester resin), b) (cross-linker) and c) (optional emulsifier). It is asserted that no other interpretation of the language is reasonable.

The declarations of July 1, 2004 ("the first declaration") and November 15, 2005 ("the third declaration") were deemed deficient in the Office Action as not commensurate in scope with the claims in terms of polyol and polyisocyanate composition, since the declaration shows use of polyester polyol and aliphatic polyisocyanate, and the claims are said to be not so limited. These declarations were also asserted to be not representative of the relied-upon prior art because neither the polyester nor the isocyanate are the same as the ones used in Blum et al. The declaration of April 10, 2006 ("the fourth declaration") is alleged to be ineffective in dismissing or discounting what is said to be a clear teaching within the prior art.

## **B. The Prior Art**

### **1. Blum**

Blum discloses water-dispersible binder compositions for production of stoving fillers. The compositions contain a) a urethane-modified polyester resin containing carboxyl groups; b) a crosslinker resin; and c) an optional emulsifier. The urethane-modified polyester resin is produced by reacting a polyester polyol having a hydroxyl value of 130 to 200 with a 2,2-bis-(hydroxy-methyl)alkanecarboxylic acid or a tertiary amine salt of a quantity corresponding to this quantity of acid, and at least one cycloaliphatic diisocyanate having a molecular weight of 166 to 294. Blum is silent regarding the use of pyrazole blocking agents.

Preparation of component a) of Blum, the urethane-modified polyester resin, is described beginning at column 3, line 53, through column 5, line 43. It is noted at column 5, lines 24-43, that the urethanization reaction can be carried out in the melt, although it is preferred to use solvents. After the urethanization reaction, small quantities of other organic solvents may also be added depending on the properties desired.

Following the urethanization reaction, Blum discloses that "the resins or rather the resin solution is dispersed in water or, unless the carboxyl groups have already been at least partly neutralized, in a mixture of water and neutralizing agent." (Column 5, lines 44-47). After the dispersion step, the solvent content may optionally be further reduced by distillation (column 5, line 62-63).

Following the description of creation of the aqueous dispersion Blum discloses details of the binder/cross-linker, component b) (beginning at column 6, line 8). Suitable cross-linker resins include melamine or urea-formaldehyde condensates, or other crosslinking amino plastics, or blocked polyisocyanates. Suitable blocking agents for the polyisocyanates include monohydric alcohols, oximes and lactams (column 6, lines 48-54).

The use of an optional emulsifier, component c), is disclosed at column 6, line 60. At column 7, lines 16-19, Blum states that "The binder compositions according to the invention or aqueous dispersions prepared therefrom may be

prepared simply by mixing the individual components a), b) and c)."

Examples 1-3 of Blum show creation of a urethane-modified polyester resin which is subsequently dispersed in water. Stoving fillers using these dispersion are then created as described at column 9, lines 6-22. The melamine cross-linker resin is added during this final process. There is no disclosure of any cross-linker being added prior to formation of the aqueous dispersion.

## **2. Hughes**

Hughes discloses polyisocyanate compositions for use in paints and elastomers that are applied to a substrate using methods of electrodeposition. The polyisocyanate compositions of Hughes utilize pyrazole derivatives as blocking agents. Hughes does not disclose preparation of a urethane-modified polyester resin. Hughes describes at page 4, lines 4-5, that the blocked polyisocyanates of that invention can be used to cross-link an aqueous dispersion containing a pigment and a resin containing an active hydrogen, but does not disclose how to make such an aqueous dispersion, and does not disclose addition of the blocked isocyanate to the resin prior to formation of the dispersion.

### **C. The Required Prima Facie Case of Obviousness Under 35 U.S.C. § 103 Has Not Been Established**

As set forth in Claim 1, the present invention provides a waterborne coating composition comprising a physical mixture present in the form of a dispersion in water and optionally organic solvents and comprising at least one polyol and at least one polyisocyanate which is blocked with pyrazole derivatives, wherein the polyisocyanate is added to the polyol before the conversion thereof to the aqueous phase.

It is asserted in the Office Action and the Final Office Action that it would be obvious to combine the teachings of Blum and Hughes and somehow arrive at the present invention, and that previous arguments and declarations are not adequately representative of the prior art, because the prior art does not require that the crosslinking agent be added after formation of the dispersion. This assertion is based on one sentence in the Blum disclosure which states that the ingredients can



be added in any order, which is said to be "clear on its face". It is also asserted that the comparative examples provided in the previous declarations are not adequately representative of the prior art, because a different polyester and diisocyanate are used. Finally, it is further asserted that Hughes establishes that the skilled artisan knew how to utilize the claimed blocking agents in aqueous systems. Appellants respectfully disagree with this characterization of the Blum and Hughes references, and the characterization of the comparative data, for the following reasons.

The sentence referred to in Blum by the Examiner in support of the position that the ingredients can be mixed in any order is only one sentence in a disclosure which is otherwise completely directed to methods of creating a composition in which the cross-linker is added after creation of the dispersion. One skilled in the art would not interpret the cited sentence in the manner suggested by the Examiner, based on a reading of the patent as a whole.

A careful reading of the description of preparation of (a), the polyurethane-modified resin, shows creation of an aqueous dispersion of the resin in the last or next to last step. At column 5, lines 44-47, the step of dispersing the resin is described. Following this step, the optional step of further reducing the solvent content of the resin is described, so that the proper solids content of the resin dispersion is obtained. This description of resin preparation clearly shows that ingredient (a) is prepared as an aqueous dispersion prior to the addition of the other ingredients used to make the coating composition.

All other evidence in the patent points to the creation of a polyurethane-modified resin as an aqueous dispersion prior to the addition of the crosslinker. All examples in the patent show preparation of an aqueous dispersion of the resin, prior to the addition of the other ingredients; not one example illustrates other types of dispersions, in which the crosslinker is added to the resin prior to the creation of an aqueous dispersion. Claim 9, also cited in support of the proposition that the ingredients can be mixed in any order, shows addition of an emulsifier prior to the creation of the aqueous dispersion of the resin and the crosslinker; there is no indication that resin and crosslinker can be combined without the emulsifier prior to the creation of the dispersion, as this step is not optional in the claim.

It is well settled in the law that a single line in a prior art reference should not be taken out of context and relied upon with the benefit of hindsight to show obviousness. Rather, a reference should be considered as a whole, and portions arguing against or teaching away from the claimed invention must be considered. *Bausch & Lomb, Inc. v. Barnes-Hind/Hydrocurve, Inc.* 796 F. 2d 443, 230 USPQ 416 (Fed. Cir. 1986), *cert. denied*, 484 U.S. 823 (1987). See also *In re Wesslau*, 353 F. 2d 238, 147 USPQ 391 (CCPA 1965) in which the Court of Customs and Patent Appeals cautioned that "it is impermissible within the framework of section 103 to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art." Further cases elaborating this principle include *In re Evanega*, 829 F. 2d 1110, 4 USPQ 2d 1249 (Fed. Cir. 1987) and *In re Wright*, 866 F. 2d 422, 9 USPQ2d 1649 (Fed. Cir. 1989). One sentence in the Blum disclosure, in view of the teachings of the reference as a whole, is not a proper foundation for a §103 rejection. This sentence has been taken out of context to form the basis of the §103 rejection. The Blum reference as a whole, as it would be read and understood by one skilled in the art, teaches addition of the cross-linker after preparation of the aqueous dispersion.

A reference must be read from the point of view of the skilled artisan. It is well established in the law that the teachings of a patent are directed to one skilled in the art, not an ordinary person. A prior art reference must be interpreted from the point of view of a skilled artisan. As established in the fourth declaration of Dr. Martin Melchior, at the time of the present invention aqueous dispersions were not prepared in the manner suggested by the Examiner; typically, a urethane-modified polyol was prepared in an aqueous dispersion, to which the crosslinker was added. One skilled in the art would interpret the disclosure of Blum in view of the examples presented, all of which show preparation of the dispersion first, and addition of the cross-linker second. Additionally, melamine resins are dispersible in water, whereas pyrazole-blocked polyisocyanates are not, as would be known by one skilled in the art. Thus, the sentence in Blum allegedly describing that the ingredients can be

mixed in any order would be interpreted by one skilled in the art in the context of the ingredients described as suitable in that document.

It is asserted that blocking agents for polyisocyanates that are to be incorporated into aqueous compositions in masked form were known at the time of invention, as evidenced by Hughes. This is an incorrect reading of Hughes, which does not provide any examples at all on the preparation of a dispersion. The one sentence cited to in Hughes, at page 4, lines 4-5, states "These paints are usually composed of a pigment dispersed in an aqueous dispersion of a resin containing active hydrogen *which is to be crosslinked by the polyisocyanate* (emphasis added)". This sentence in fact indicates that Hughes shows addition of the blocked cross-linker after the creation of the dispersion, not before, as asserted in the Office Action. It is conceded in the Final Office Action that Hughes does not provide any teaching as to when the crosslinker is to be added to the composition.

One sentence in each reference is relied upon as a basis for asserting that the present invention is obvious, in spite of the fact that case law and precedent, ignored by the Examiner, specifically address this situation and instruct the opposite conclusion, namely, that a single line in a prior art reference should not be taken out of context and relied upon with the benefit of hindsight to show obviousness. The Examiner picks one sentence from each reference to support his position, to the exclusion of the other parts necessary to understand what the references in fact teach. As established in the Declaration of Dr. Melchior, both the Blum and Hughes references as a whole, and as would be read and understood by one skilled in the art, teach addition of the cross-linker after preparation of the aqueous dispersion, and say nothing to one skilled in the art about how to incorporate a blocked polyisocyanate into an aqueous dispersion.

The comparative data are representative of the relied-upon art, and are commensurate in scope with the presently claimed invention.

The examples in the application show use of aliphatic polycarbonate polyesters; the first declaration showed use of polyester polyol and aliphatic polyisocyanate; and the second/third declarations show use of aromatic polyisocyanates in combination with linear aliphatic polyethers. Thus, both aliphatic

and aromatic isocyanates have been demonstrated, and polycarbonate, polyester, and polyether polyols have been shown. The present invention clearly works in all categories claimed. Criticality of the order of addition has also been demonstrated: following the method taught in the examples of Blum, one cannot add the blocked polyisocyanates of the present invention after creation of the dispersion and obtain a suitable coating.

It is asserted in the Office Action that because Appellants have not used the exact polyester and diisocyanate shown in Blum that the comparative data are not representative of the prior art. This notion is absurd. Example D4 of the present invention on page 17 describes use of a polyester prepared from adipic acid and hexanediol, which is mixed with dimethylolpropionic acid, hexane 1,6-diol and N-methylpyrrolidone, which is then further reacted with isophorone diisocyanate to prepare the urethane-modified polyol. These ingredients are almost identical to those used in Blum, Example 1, to prepare the urethane-modified polyol of that invention. The present compositions cannot be directly compared to Blum because Blum uses a melamine resin cross-linker which is not blocked, and which is not used in the present invention. Additionally, as pointed out in the Fourth Declaration by Dr. Melchior, and as known in the art, melamine resin is easily dispersible in water, whereas pyrazole-blocked polyisocyanates are not. The differences between the present invention and the composition taught by Blum are not due to the difference in specific polyol or specific isocyanate used to prepare the urethane-modified polyol, but due to the method of making the dispersion, and the addition of blocked cross-linker. One skilled in the art would reasonably conclude that any of the claimed polyisocyanates and polyols would provide the desired properties and behave similarly in the method of preparation, as shown in the comparative examples.

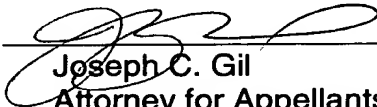
Appellants have amply demonstrated that the presently claimed invention is not taught or suggested by any of the cited references. Only with the hindsight provided by the present invention would one skilled in the art conclude that a stable dispersion with could be achieved in the manner recited in Claim 1. Appellants respectfully request withdrawal of the §103 rejection of Claims 1-7 and 9-11.

**VIII**

**CONCLUSION**

Appellants respectfully submit that all pending claims, Claims 1- 7 and 9-11, are patentable and that the present application is in condition for allowance; such action is respectfully requested at an early date.

Respectfully submitted,

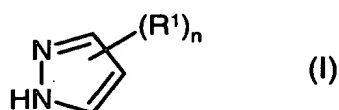
By   
Joseph C. Gil  
Attorney for Appellants  
Reg. No. 26,602

Bayer MaterialScience LLC  
100 Bayer Road  
Pittsburgh, Pennsylvania 15205-9741  
(412) 777-3813  
FACSIMILE PHONE NUMBER:  
(412) 777-3902  
s:\shared\jmf\DA6476.brf

## IX

### CLAIMS APPENDIX

1. A waterborne coating composition comprising a physical mixture present in the form of a dispersion in water and optionally organic solvents and comprising
- A at least one polyol having urethane groups and chemically bound hydrophilic groups, and
  - B at least one polyisocyanate having no chemically bound hydrophilic groups and which is blocked with pyrazole derivatives corresponding to formula (I)



- wherein R<sup>1</sup> represents a (cyclo)aliphatic hydrocarbon radical having 1 to 12 carbon atoms and wherein n is an integer from 0 to 3,
- wherein the molar ratio of blocked NCO groups of crosslinking agent B to NCO-reactive groups of polyol A or binder mixtures containing polyol A is 0.2 : 1 to 5 : 1; and
- wherein
- the polyisocyanate B is added to the polyol A before the conversion thereof to the aqueous phase.

2. The waterborne coating composition of Claim 1 wherein the hydrocarbon radical has 1 to 4 carbon atoms.

3. The waterborne coating composition of Claim 1 wherein the polyol A has an average molecular weight M<sub>n</sub> (calculated from the stoichiometry of the starting material) from 1,600 to 50,000, an acid value from 10 to 80 and a hydroxyl value from 16.5 to 200.

4. The waterborne coating composition of Claim 1 wherein the polyol A has a number-average molecular weight  $M_n$  (calculated from the stoichiometry of the starting material) from 1,600 to 10,000, an acid value from 15 to 40 and a hydroxyl value from 30 to 130.

5. The waterborne coating composition of Claim 1 wherein the polyol A is prepared from

- A1 5 wt.% – 80 wt.% based on A1 to A6 of at least one organic polyisocyanate
- A2 10 wt.%-80 wt.% based on A1 to A6 of at least one polyol and/or polyamine with an average molecular weight  $M_n$  of at least 400,
- A3 2 wt.%-15 wt.% based on A1 to A6 of at least one compound containing at least two groups which are reactive towards isocyanate groups and at least one group capable of anion formation,
- A4 0 wt.%-20 wt.% based on A2 to A4 of at least one polyol with a molecular weight  $M_n$  from 62 to 200,
- A5 0 wt.%-20 wt.% based on A1 to A6 of at least one compound which is monofunctional or contains active hydrogen of varying reactivity, these components being situated in each case at the chain end of the polymer containing urethane groups, and/or
- A6 0 wt.%-20 wt.% based on A1 to A6 of at least one compound which is different from A2, A3, A4 and A5 and contains at least two groups which are reactive towards NCO groups.

6. The waterborne coating composition of Claim 5 wherein the amount of

- A1 is 10 wt.%-60 wt.% based on A1 to A6,
- A2 is 36 wt.%-70 wt.% based on A1 to A6,
- A3 is 3 wt.%-10 wt.% based on A1 to A6,
- A4 is 1 wt.%-10 wt.% based on A2 to A4,

A5 is 0 wt.%-20 wt.% based on A1 to A6, and  
A6 is 0 wt.%-20 wt.% based on A1 to A6.

7. The waterborne coating composition of Claim 1 wherein the blocking agent is 3,5-dimethylpyrazole or 3-methylpyrazole.

9. A process for the preparation of waterborne coating compositions of Claim 1 wherein the crosslinking agent component B is added to the polyol resin A containing urethane and hydroxyl groups before conversion to the aqueous phase and the mixture thus obtained is then dispersed in water.

10. A substrate coated with the waterborne coating composition of Claim 1.

11. The substrate of Claim 10 wherein the substrate is an automotive substrate.



**X**  
**EVIDENCE APPENDIX**

1. First Declaration of Martin Melchiors, signed July 1, 2004, submitted under Rule 1.132 in connection with the response to the Office Action dated March 15, 2004 and acknowledged and considered in the Advisory Action dated July 28, 2005.

2. Second Declaration of Martin Melchiors, signed March 3, 2005, submitted under Rule 1.132 in connection with the response to the Office Action dated September 17, 2004, and acknowledged and considered in the Office Action dated June 15, 2005.

3. Third Declaration of Martin Melchiors, signed November 14, 2005, submitted under Rule 1.132 in connection with the response to the Office Action dated June 15, 2005, and acknowledged and considered in the Office Action dated December 13, 2005.

4. Fourth Declaration of Martin Melchiors, signed March 20, 2006, submitted under Rule 1.132 in connection with the response to the Office Action dated December 13, 2005, and acknowledged and considered in the Office Action dated June 28, 2006.

**XI**  
**RELATED PROCEEDINGS APPENDIX**

None.